



# California Water Plan Update 2013

## Groundwater Content Enhancement



*Groundwater Caucus*  
August 22, 2012



# CWP Update 2013, Groundwater Content Enhancement Groundwater Case Study Topics

➤ GW Management: Best Management Practices

➤ Legislation to Implementation: CASGEM



➤ Institutional Challenges to GW Recharge

- Intent
- Existing Process
- Challenges/Obstacles ...case study examples
- Success Stories ...case study examples





# CWP Update 2013, Groundwater Content Enhancement Groundwater Management Case Study

- **Groundwater Management Case Study:**
  - Why do Groundwater Management?
  - What GW Management Practices are we following?
  - Success Stories...Case Studies
  - Challenges/Issues...Case Studies
  - What additional guidance or BMPs are needed?



# Why Groundwater Management?

- GW accounts for about 40% of CA water supply and about 11% of all groundwater extracted in the country
- CWC § 10750 (a)
  - “...groundwater is a valuable natural resource in California, and should be managed to ensure both its safe production and its quality.”
  - “...to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions should be managed to ensure both its safe production and its quality.”
- Safe Yield, Sustainability, Reliability, Local Control.





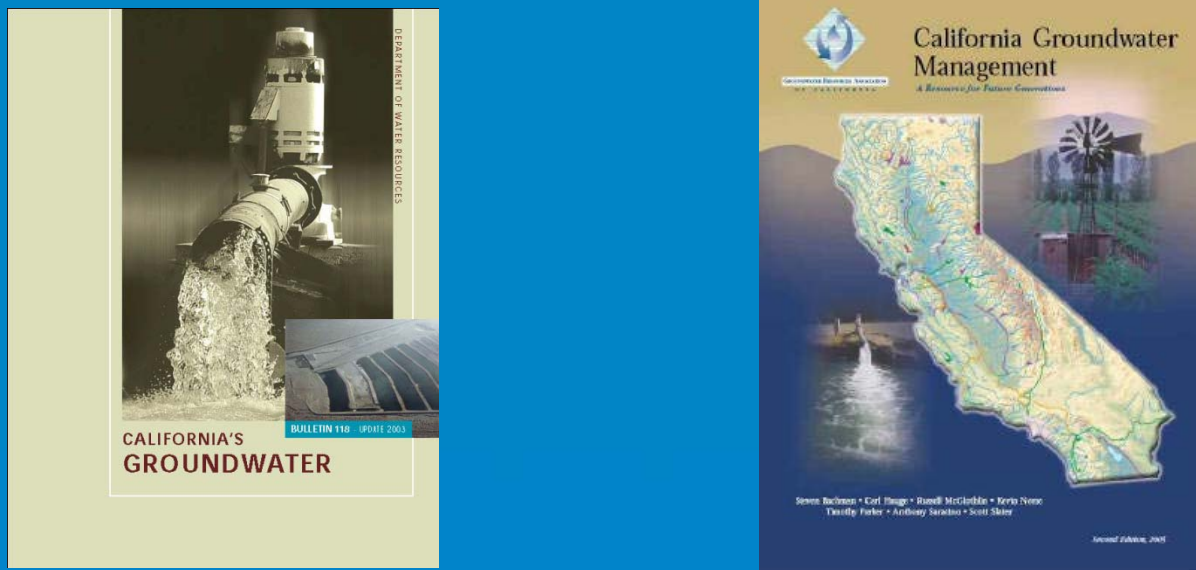
# CWP Update 2013, Groundwater Content Enhancement Groundwater Management Case Study

## Process...Groundwater Management Methods

1. Overlying Property Rights:
2. Statutory Authority:
3. Adjudicated Groundwater Basins:
4. Groundwater Management Districts or Agencies:
5. Groundwater Management Plans: (CWC § 10750 *et seq.*)
6. City and County Ordinances:



# Groundwater Management Resources



## water facts

No. 8

### Groundwater Management in California—Six Methods Under Current Law

Groundwater and surface water are not treated alike under California law. The permit application process for appropriating surface water in California is contained in the *California Water Code*. By contrast, rights to use groundwater have evolved through a series of court decisions dating back to the late 1800s.

Although surface water and groundwater supplies have been regarded as separate water resources in California, they are the same resource—water.

In some parts of California the relationship between overlying landowners that extract groundwater and local water management agencies is not clear.

This situation has complicated relationships between landowners who use groundwater, and local water agencies and districts which import surface water.

This *Water Facts* describes the six methods of managing groundwater used in California. The methods are listed in the chronological order in which they were developed.

*Water Facts* are short reports on water resources issues of general interest. They are published periodically by the California Department of Water Resources and can be obtained free by contacting DWR Bulletins & Reports, P.O. Box 942838, Sacramento, CA 94238-0001; 916/553-1097.

August 2000

## Water Facts

Number 2

State of California  
The Resources Agency  
Department of  
Water Resources



### 7-Steps for Managing Groundwater Supplies

Many communities in California use groundwater as the main source for their public water supply system, and many individual residences are totally dependent on groundwater for their supply. In addition, many agricultural operations are partly or entirely dependent on groundwater for their water supply—especially in times of drought. The amount of groundwater in storage in each basin is dependent on the precipitation, recharge and the total extraction of all the wells. A groundwater management plan that is designed for the political, institutional, legal and technical specifics of the basin can help everyone maintain the quality and quantity of the groundwater supply.

The following 7-step groundwater management program will help local groundwater managers, individuals, residents, and public water supply system operators determine how far groundwater levels will decline if a certain amount of groundwater is extracted. With this information, they will be able to make informed decisions in managing the available groundwater to assure an available supply in the future.

Begin your plan now by evaluating the data that are available, even though you think you need more data. This initial evaluation will help you

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plan additional programs that will lead to more efficient management.

Find out what statutory authority your agency operates under and whether the Water Code provides authority to manage groundwater. Many local agencies are now taking advantage of AB 3030 (California Water Code § 10750, et seq.) to develop groundwater management plans for their agency.

### 7 Steps

**1** Locate and identify water wells, and collect groundwater level and ground water quality data.

The location of each water well in the area should be recorded, and each well should be assigned a "State Well Number" by DWR. Collect drillers' logs, and compile water level measurements and water-quality analyses that are available from each of the wells. Plot this information on maps and graphs for use in steps 2, 3, 4, and 5. This is the start of a monitoring program.

**2** Determine the amount of groundwater that is extracted by each well or otherwise removed from the groundwater basin.

Total the amount of groundwater extracted by all wells and add whatever other water is removed from the basin (evapotranspiration, exports, consumptive use, and surface water outflow). Compare this total with the total amount of water that comes into the basin (see Step 4).

February 1996

## water facts

No. 10

### Components of a Ground Water Management Plan

Managing groundwater to ensure a long-term sustainable and reliable, good quality water supply requires that local agencies implement a groundwater management program suitable to the political, legal, institutional, technical and economic opportunities and constraints that exist in their basin. This *Water Facts* lists components from Bulletin 118 (2003), *California's Groundwater*, Appendix C that should be considered for inclusion.

As the result of 2002 amendments to the Water Code (Sections 10750 et seq., SB 1938, Stats. 2002, ch. 603), Components 1, 2, 3, 6, 7, and 9 must be included in an agency's groundwater management plan if the agency is seeking certain state funding for proposed projects.

Funding provided under Water Code Section 10795, the Local Groundwater Management Assistance Act, is exempted from that requirement.

#### List of Components

##### Component 1

Include documentation that a written statement was provided to the public "describing the manner in which interested parties may participate in

developing the groundwater management plan," which may include appointing a technical advisory committee.

Water Code Section 10753.4 (b)  
This documentation must be included in a plan adopted under Water Code Section 10750 (AB 3030).  
Water Code Section 10750

##### Component 2

Include a plan by the managing entity to "involve other agencies that enables the local agency to work cooperatively with other public entities whose service area or boundary overlies the groundwater basin."

Water Code Section 10753.7 (a)(2)

A local agency includes "any local public agency that provides water service to all or a portion of its service area and includes a joint powers authority formed by local public agencies that provide water service."

Water Code Section 10752 (g)

##### Component 3

Provide a map showing the area of the groundwater basin, as defined by DWR Bulletin 118, with the area of the local agency subject to the plan as well as the boundaries of other local agencies that overlie the basin in which the agency is developing a groundwater management plan.  
Water Code Section 10753.7 (a)(3)

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May 2004

## Required GWMP Components & Subcomponents (CA WC §10753.7)

### 1. Basin Management Objectives

Monitoring/Management Groundwater Levels

Monitoring Groundwater Quality

Inelastic Subsidence

SW/GW Interaction & Affects to Groundwater Levels & Quality

### 2. Agency Cooperation

### 3. Map

Groundwater basin area

Area of local agency

Boundaries of other local agencies

### 4. Recharge Areas (1/1/2013)

### 5. Monitoring Protocols

Changes in groundwater levels

Changes in groundwater quality

Subsidence

SW/GW Interaction & Affects to Groundwater Levels & Quality

### 6. Compliance with 1-5 for GWMPs Located Outside B118-03 Basins





## **Voluntary GWMP Components (CA WC §10753.8)**

- 1. Control Saline Intrusion**
- 2. Identify & Manage Wellhead Protection & Recharge Areas**
- 3. Regulate Migration of Groundwater Contamination**
- 4. Administer Well Abandonment & Destruction Programs**
- 5. Mitigate Conditions of Overdraft**
- 6. Groundwater Extraction & Replenishment**
- 7. Monitoring of Groundwater Levels and Storage**
- 8. Facilitate Conjunctive Use Operations**
- 9. Identify Well Construction Policies**
- 10. Construction and Operation by the Local Agency of Groundwater Projects**
- 11. Develop Relationships with State & Federal Regulatory Agencies**
- 12. Coordinate with Land Use Planning to Minimize Risks to GW Supply**





## **Suggested GWMP Components (B118-03, Appendix C)**

**1. GWMP Guidance: Establish Advisory Committee to Guide GWMP**

**2. Management Area: Describe Physical Setting, Aquifer Characteristics, Historical Data, Known Issues, Historical Water Supply & Demands.**

**3. BMOs, Goals, & Actions**

**4. Monitoring Plan Description**

**5. IRWM Planning Coordination**

**6. GWMP Implementation: Status Reports of Basin Conditions & Mgmt Actions**

**7. GWMP Evaluation & Assessment:**



# California Groundwater Management Plans ...as of April, 2012

## *What's Working?*

About 119 GWMPs

Most of the High GW  
Production Basins are  
Covered.

About 66% of the  
GWMPs are post 2002  
( SB 1938)

...there has been a  
concerted effort to  
implement local GWM

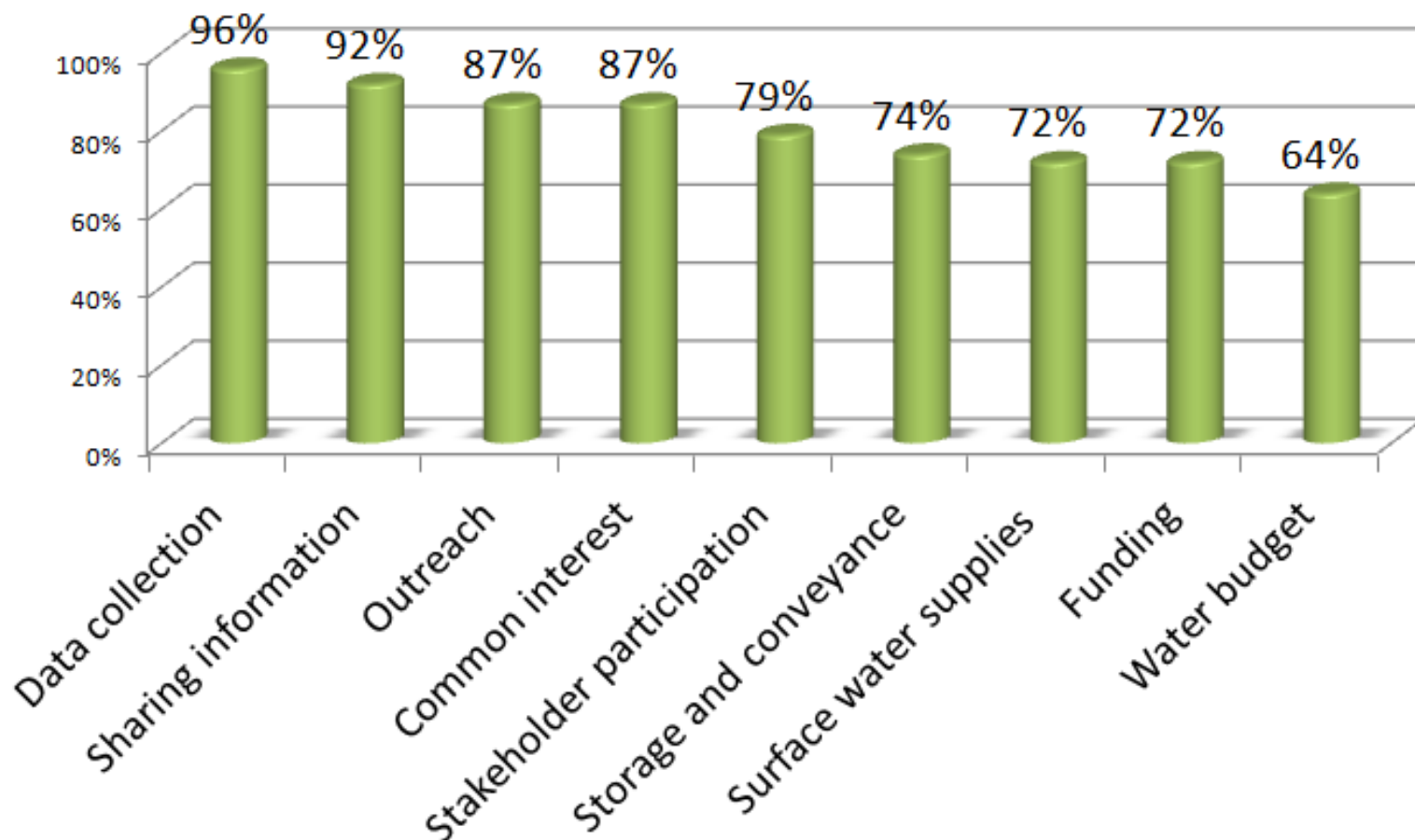


Post SB 1938  
Pre SB 1938

# What's Working?

## Key Components of local groundwater management being implemented by each agency

56 survey respondents

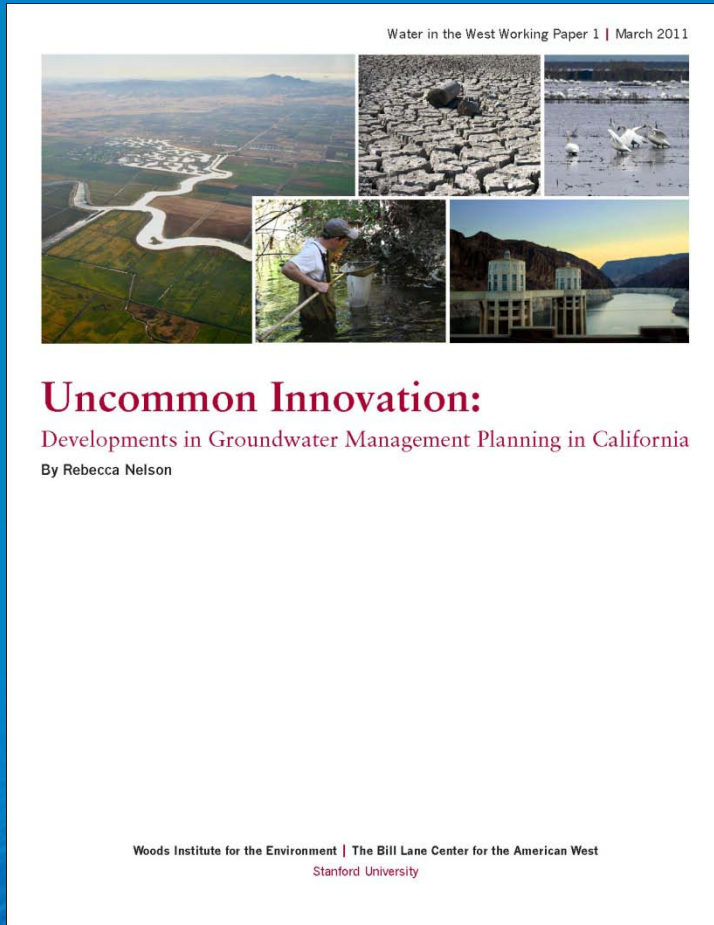




# What's Working?

*Rebecca Nelson, Water in the West  
Working Paper, March 2011  
(Review and Assessment of 52 GWMPs)*

- Agencies using measurable Objectives for limiting gw drawdown
- Collaboration with neighbors
- Involvement with a broad range of stakeholders
- Undertaking GW metering and mont.
- Actively controlling pumping to limit groundwater drawdown
- Protecting interconnected SW-GW systems



# California Groundwater Management Plans ...as of April, 2012



## *What are the Challenges?*

Post 2002 GWMPs  
only cover about 31%  
of GW Basin Area

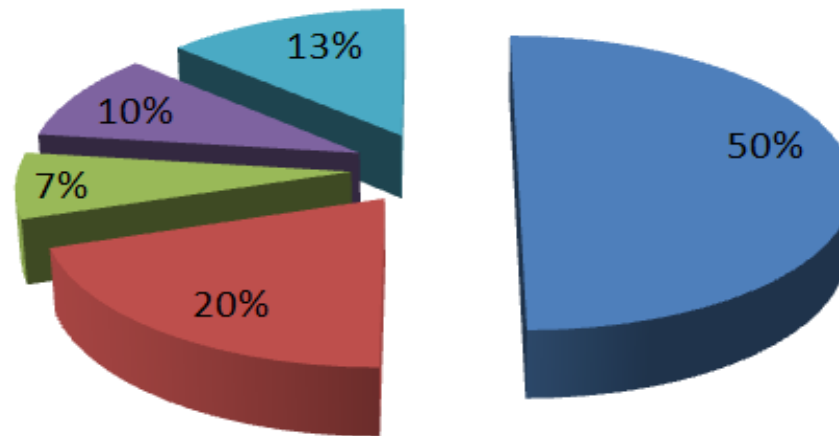
Only about 15% of  
GWMPs fully meet all  
the SB 1938 required  
components (not  
including recharge)

SB 1938 Compliant  
GWMPs cover only  
16% of GW Basin Area

# Obstacles: Political, institutional, legal, technical, and fiscal

## Factors Limiting The Successful Development of Sustainable Groundwater Management

46 Survey respondents



- Limited Funding
- Physical Limitations
- Limited Data and Analysis
- Groundwater Policy
- Public Involvement





# DWR GW Management Plan Assessment

## Observations:



- Highly variable in form and function.
- Identify and discuss management components but don't define what actions are being taken to address each component.
- Lack of clearly defined goals and measurable objectives
- Many GWMPs stop at planning phase and don't take steps to actively implement the plan
- The GW/SW interaction is not addressed, monitored, or evaluated.
- Missing protocols design to detect changes



# *Challenges & Needed Improvements*

*Rebecca Nelson, Improving Regional Groundwater Management in California, May 2012*

## IMPROVING REGIONAL GROUNDWATER MANAGEMENT IN CALIFORNIA

PREPARED FOR THE NATURAL RESOURCES DEFENSE COUNCIL

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MAY 2012

- Highly variable methods
- No requirement to actively implement
- No review or approval process
- Narrowly focused goals (typically don't have environmental goals)
- Limited Resource Mgmt Strategies (supply augmentation vs demand mgmt)
- Limited data collection and reporting (especially GW use data)
- Limited access to GWMP



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## Some Really Good Aspects:

- **Sonoma County WA:**
  - Volunteer monitoring, outreach, and recharge mapping
- **Elsinore Valley MWD:**
  - Establishes Baseline conditions
  - Outlines a series of Resource Management Strategies
- **SGA & Kings River**
  - Regional Collaboration (good participation)
  - Groundwater Recharge Programs
- **Yolo Flood Control, Butte County, San Joaquin County:**
  - Regional Groundwater Data Sharing
- **Fox Canyon GMA:**
  - Mechanism to control and/or limit pumping



# CWP Update 2013, Groundwater Content Enhancement Groundwater Management Case Study

## GWMP Discussion Questions...for later

1. Do you know of agencies with a comprehensive GWMP that have been able to implement most of their components?
  - a) If yes, what is considered the biggest factor enabling successful implementation?
  - b) If not, what hurdles or obstacles did the agency encounter that limited their implementation of groundwater management.
2. What are some recommendations to further facilitate local groundwater management planning efforts?





# Questions

